WHAT IS CLAIMED IS:

1. A process for selectively etching a material layer formed in a structure, comprising:

forming a plasma from a fluorine-containing gas;

maintaining the structure temperature at greater than about 100° C; and

forming an opening extending from a surface of the structure to the material layer; and

exposing the material layer to the plasma through the opening to etch the material layer.

2. The process of claim 1 wherein the fluorine-containing gas comprises NF3.

3. The process of claim 1 wherein the opening is selected from among a substantially vertical via opening and a substantially horizontal trench opening.

4. The process of claim 1 wherein the opening exhibits a relatively high aspect ratio of at least about 50:1.

5. The process of claim 1 wherein the step of exposing further comprises adjusting an exposure duration to control an extent of the material layer etch.

6. The process of claim 1 wherein the material layer comprises a sacrificial layer.

7. The process of claim 1 wherein the material layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy.

8. The process of claim 1 wherein the structure comprises layers selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys.

9. The process of claim 1 wherein the structure comprises an overlying and an underlying layer selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys, and wherein the material layer comprises a sacrificial layer disposed between the underlying and the overlying layers, and wherein the material layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy.

10. The process of claim 1 wherein the step of maintaining the structure temperature further comprises maintaining the structure temperature between about 100° C and 200° C.

11. The process of claim 1 wherein the structure comprises an overlying and an underlying layer with the material layer disposed therebetween, and wherein the material layer comprises a sacrificial layer, and wherein after the exposing step the overlying and the underlying layers are decoupled.

12. The process of claim 1 wherein the structure comprises an overlying and an underlying layer, and wherein the material layer comprises a sacrificial layer, and wherein after the exposing step one or more regions of the material layer are removed.

13. The process of claim 12 wherein the sacrificial layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy, and wherein one of the overlying layer and the underlying layer comprises aluminum.

14. The process of claim 1 wherein the step of forming the plasma further comprises forming the plasma at a sub-atmospheric pressure in the range of about 500 mT to about 50,000 mT.

15. A process for selectively etching a sacrificial layer formed in a structure comprising a microelectromechanical device and one or more semiconductor devices, the process comprising:

forming a plasma etchant from a fluorine-containing gas;

maintaining the structure temperature at greater than about 100° C; and

forming an opening extending from a surface of the structure to the sacrificial layer; and

exposing the sacrificial layer to the plasma etchant to remove regions of the sacrificial layer without compromising the integrity of the semiconductor devices.

16. The process of claim 15 wherein an etch ratio of the etchant is at least 10:1.

17. The process of claim 15 wherein the microelectromechanical device comprises in stacked relation first, second and third material layers and wherein the second material layer comprises the sacrificial layer and is selected from among titanium, titanium-nitride and a titanium alloy.

18. The process of claim 17 wherein the first and the third material layers are selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys.

19. The process of claim 15 wherein the opening exhibits a relatively high aspect ratio of at least 50:1.

20. The process of claim 15 wherein the step of maintaining the structure temperature further comprises maintaining the structure temperature between about 100° C and 200° C.

21. The process of claim 15 wherein the micromechanical device comprises an overlying and an underlying layer with the material layer disposed therebetween, and wherein the material layer comprises a sacrificial layer, and wherein after the exposing step the overlying and the underlying layers are decoupled.

22. A process for forming a contact between a conductive via and a doped region formed in a semiconductor substrate, comprising:

forming a sacrificial layer overlying the doped region;

forming a material layer overlying the sacrificial layer;

forming an opening in the material layer, wherein the opening exposes a region of the sacrificial layer;

etching at least a portion of the sacrificial layer;

forming a conductive material in the etched portion of the sacrificial layer; and

forming conductive material in the opening.

23. The process of claim 22 wherein the step of etching further comprises:

forming a plasma from a fluorine-containing gas;

maintaining the substrate temperature at greater than about 100° C; and

exposing the sacrificial layer to the plasma to etch the sacrificial layer.

24. The process of claim 23 wherein the step of exposing further comprises exposing the sacrificial layer to the plasma through the opening.

25. The process of claim 22 wherein the opening exhibits a relatively high aspect ratio of at least about 50:1.

26. A process for forming a reentrant feature in a substrate, comprising:

forming the substrate comprising in stacked relation, a first material layer, a first sacrificial layer, a second material layer, a second sacrificial layer, and a third material layer;

forming a substantially vertical region of sacrificial material in the second material layer bridging the first and the second sacrificial layers;

forming an opening through the third material layer, the second sacrificial layer and the second material layer, wherein the opening is bounded by the bridging sacrificial material and exposes the first sacrificial layer;

laterally etching a portion of the first and the second sacrificial layers proximate the opening and vertically etching the bridging sacrificial material.

27. The process of claim 26 wherein the step of etching further comprises exposing the substrate to a fluorine-containing gas.

28. The process of claim 26 wherein the opening exhibits a relatively high aspect ratio of at least about 50:1.

29. The process of claim 26 wherein the material of the first and the second sacrificial layers and the bridging sacrificial layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy.

30. The process of claim 26 wherein the material of the first, second and third material layers is selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys.

31. The process of claim 26 wherein the etching step further comprises maintaining the substrate between about 100° C and 200° C.

32. The process of claim 26 wherein the first material layer comprises a dielectric material layer, the process further comprising;

forming a first capacitor plate in an etched region of the first sacrificial layer; and

forming a second capacitor plate underlying the first material layer, wherein the dielectric material layer intermediate the first and the second capacitor plates comprises a capacitor dielectric.

33. The process of claim 26 wherein the second material layer comprises a dielectric material layer, the process further comprising;

forming a first capacitor plate in an etched region of the second sacrificial layer; and

forming a second capacitor plate overlying the third material layer, wherein the dielectric material layer intermediate the first and the second capacitor plates comprises a capacitor dielectric.

34. The process of claim 26 wherein the second material layer comprises first and second portions separated by the opening, and wherein the second material layer comprises a conductive material layer, and wherein the first and the second portions operate as first and second capacitor plates, and wherein a capacitor dielectric comprises a region from which the bridging sacrificial material has been etched.

35. The process of claim 34 further comprising forming a dielectric material in the region from which the bridging sacrificial material has been etched, wherein a capacitance of the capacitor is responsive to the dielectric material.

36. A structure comprising a plurality of material layers in stacked relation comprising:

a first material layer;

a sacrificial layer;

a second material; and

an opening in the first material layer extending to the sacrificial layer, wherein an etchant is introduced into the opening to remove at least a portion of the sacrificial layer.

37. The structure of claim 36 wherein the opening exhibits a relatively high aspect ratio of at least about 50:1.

38. The structure of 36 wherein the sacrificial layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy.

39. The structure of claim 36 wherein the first and the second material layers are selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys.

40. The structure of claim 36 wherein the first and the second material layers are decoupled due to the removed portion of the sacrificial layer.

41. The structure of claim 36 wherein the second material layer comprises a member having a first end decoupled from the sacrificial layer due to the removed portion of the sacrificial layer and a second end affixed to the sacrificial layer.

42. The structure of claim 41 wherein the second material layer comprises a cantilevered beam member.

43. A micro-mirror structure comprising:

a substrate;

a sacrificial layer overlying the substrate;

a reflective material overlying the sacrificial layer, wherein the reflective material comprises a pivotable region; and

an opening in at least one of the substrate and the reflective material extending to the sacrificial layer, wherein an etchant is introduced into the opening to remove at least a portion of the sacrificial layer.

44. The structure of claim 43 wherein the opening exhibits a relatively high aspect ratio of at least about 50:1.

45. The structure of claim 43 wherein the sacrificial layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy, and wherein the substrate layer is selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys.

46. The structure of claim 43 wherein the removed portion of the sacrificial layer permits pivoting of the pivotable region relative to the substrate.

47. A structure comprising a microelectromechanical device and one or more semiconductor devices, the structure comprising:

a substrate comprising the one or more semiconductor devices;

a sacrificial layer overlying the substrate;

a material layer overlying the sacrificial layer, wherein the microectromechanical device is formed in the material layer; and

an opening in at least one of the substrate and the material layer extending to the sacrificial layer, wherein an etchant is introduced into the opening to remove at least a portion of the sacrificial layer to form the microectromechanical device.

48. The structure of claim 47 wherein the opening exhibits a relatively high aspect ratio of at least about 50:1.

49. The structure of 47 wherein the sacrificial layer is selected from among titanium, titanium-nitride, a titanium compound and a titanium alloy, and wherein the substrate and the material layer are selected from among silicon dioxide, polycrystalline silicon, amorphous silicon, single-crystal silicon, silicon nitride, tungsten, elemental aluminum and aluminum alloys.

50. The structure of claim 47 wherein the removed portion of the sacrificial layer permits movement of the microectromechanical device relative to the substrate.

51. The structure of claim 47 wherein the material layer comprises a structure affixed at spaced-apart ends thereof to the sacrificial layer and a region intermediate the spaced-apart ends and overlying the removed portion, wherein the intermediate region is moveable relative to the substrate.